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**U.S. Environmental Protection Agency**

## Pollution Prevention (P2) Framework

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## Pollution Prevention (P2) Framework

The P2 Framework is an approach to risk screening that incorporates pollution prevention principles in the design and development of chemicals. The objective of the P2 Framework approach is to inform decision making at early stages of development and promote the selection and application of safer chemicals and processes. This approach is implemented by means of a set of computer models that predict risk-related properties of chemicals using structure activity relationships (SARs) and standard (default) scenarios. These models have been developed by EPA's Office of Pollution and Toxics (OPPT) to screen new chemicals in the absence of data. Annually EPA evaluates ~2,000 chemicals submitted as Premanufacture Notices (PMNs) by industry under the New Chemicals Program of the Toxic Substances Control Act (TSCA) of 1976. TSCA requires EPA evaluate the chemicals within 90 days, however the law does not require that the submitter conduct laboratory tests to evaluate potential hazard and risk of the chemicals. Operating under this time limitation and often a lack of data, EPA developed methods to quickly screen chemicals in the absence of data.

**The P2 Framework Models** capture the expertise of multiple EPA scientists, grantees, and support contractors working for 20+ years screening chemicals in the absence of data. The P2 Framework Project presents these models to industry with the hope that the models will be useful in identifying potential problem chemicals and processes early in the research and development (R&D) process.

Searching for **Existing Data** on your chemical(s) of concern is the required first step in using these models. The P2 Framework models are screening level models with an inherent degree of uncertainty. The models should not be used if data are available from well-designed laboratory studies. Adequate test data are always preferred over data predicted using structure activity relationships (SARs). When test data on the specific chemical are not available, test data on close analogs are preferred. If no test data can be located, predicted data may be generated with methods like the screening level models contained in the P2 Framework.

A simple to read and use **P2 Framework Manual** was developed which describes the models integrated into the P2 Framework and explains what each model does and what is needed to use it. The 200+ page P2 Framework Manual (**P2 Manual 6-00.pdf - 3.2MB**) can be printed from the attached PDF file. Contact Maggie Wilson for a printed copy of the manual.

**P2 Workshops and Presentations** have been conducted to present the P2 models to industry and other stakeholders. Workshops, Seminars, and Presentations vary

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in length (from 3 days for hands on training to less than one hour information briefing) and focus depending on the interests of the organization requesting the event. Contact Bill Waugh or Maggie Wilson for information.

**P2 Partnerships** have been formed with companies from numerous industry sectors for the purpose of exploring the applicability of the P2 models to the specific industry sector. After successfully exploring the P2 models, both Eastman Kodak and PPG, Industries, Inc., announced their plans to incorporate the use of the P2 Framework models into their R&D chemical screening efforts. More information is in the EPA Headquarters press release issued Oct. 28, 1999 which states "PPG Industries and Kodak Use EPA P2 Framework to Make Safer Chemicals". The press release can be accessed by going to the EPA home page <http://www.epa.gov>, and click on the following: EPA Headquarters Press Releases, Documents Available by Date, 1999, October. Look for the Press Release under the date 10/28/99. Contact Bill Waugh or Maggie Wilson for information.

**P2 Pays:** Eastman Kodak initiated a Cost Accounting study by the Tellus Institute (Boston, MA) which examines the cost savings realized when Kodak applied the P2 Framework models to their new chemicals R&D process. Preliminary studies indicate cost savings realized by Eastman Kodak were between \$13,500 and \$100,000 in avoided costs (expenses) for each \$100,000 dollars Kodak spent in product development for a new chemical candidate. The Tellus report was published in: Bureau of National Affairs, Chemical Regulation Reported, Vol. 24, No. 34, August 2000. \*A copy of the Tellus report can be obtained by contacting Tom Votta (617) 266-5400 at [tvotta@tellus.org](mailto:tvotta@tellus.org) or contact Bill Waugh.

**OECD Tools for R&D Screening Initiative** is being conducted for OECD's Risk Management Program within OECD's Environmental Health and Safety (EHS) Program. The goals are to: (1) improve the understanding of potential risk issues associated with new chemicals, especially at the R&D stage of product development; and (2) help make OECD Member countries aware of chemical screening methods used by other Member countries. Member countries will be surveyed to determine the methods they use to screen chemicals. Certain methods will be evaluated, and survey results will be posted on the Internet. Contact Maggie Wilson for more information.

**The PBT Profiler**, an on-line screening model made up of a subset of the P2 Framework models, is being beta tested. It predicts a chemical's persistence, bioaccumulation, and aquatic toxicity and compares the predictions to EPA's TRI and New Chemicals Program PBT criteria. The PBT Profiler was designed to help interested parties voluntarily screen chemicals for persistence, bioaccumulation, and aquatic toxicity characteristics when no experimental data are available. Contact Amuel Kennedy for more information.

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